REMARKS

Claims 1-15 are currently pending in the application. By this amendment, claims 1, 4, 5, 8, 11, 13 and 15 are amended for the Examiner's consideration. The foregoing separate sheets marked as "Listing of Claims" shows all the claims in the application, with an indication of the current status of each.

In the specification, the paragraph beginning at page 3, line 20 has been amended to correct a typographical error.

The Examiner has rejected claims 1 and 5 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,516,301 to Aykin. Further, the Examiner has rejected claims 2-4 and 6-15 under 35 U.S.C. §103(a) as being unpatentable over Aykin. In addition to the arguments made in the prior office action the Examiner states that Aykin "teaches that the maintained inventory is determined to meet the desired order fill rate (col 3, lines 33-40)" and that, therefore, "it is inherent that if the inventory level meets the order fill rate, the cost of inventory is minimized."

This is incorrect. Aykin determines component inventory levels required to meet a desired order fill rate (col. 3, lines 33-40). However, meeting a desired fill rate is not equivalent to minimizing the total inventory cost of components. In fact, this can only be true if the unit cost is same for every component, which is not the case in practice, especially not in personal computer manufacturing where component costs are vastly different depending on the type of component (for instance, memory chips are relatively cheap while processors are expensive). It is to be noted that applicant's argument was that the present invention uses component cost information, whereas Aykin's method does not. While it is believed that the existing claim language fairly implies this meaning for the inputs to total inventory cost, the inventory being comprised of components, the present amendment makes this meaning explicit.

Furthermore, the order fill rate is a probabilistic metric that is measured statistically over time. Because any manufacturing environment is stochastic (due to uncertain customer demand, forecast errors, unknown feature ratios or attach rates, varying lead times, etc.), **meeting a desired order fill rate never implies that there is zero surplus inventory**. To the contrary, holding extra inventory is necessary to protect against such uncertainties and guarantee that a desired order fill rate is satisfied.

In order to reduce (e.g., minimize) the total inventory cost, the unit costs of components must be taken into consideration. Because the unit costs of components are different, it is possible to significantly reduce overall inventory cost by reducing the fill rate of a high-cost component only slightly. How this can be achieved in a way such that total inventory costs are reduced (e.g., minimized) is described in the present invention. **It is not handled by Aykin's method, nor does Aykin describe or suggest how it could be handled. The "inherency" argument made by the Examiner applies to proposition that the costs of the Aykin solution can be determined, but not to the proposition that Aykin's solution minimizes the total cost of the inventory of components where the cost varies from one component to another.** Aykin uses an order based concept of "fill rate." That is, an assembly plant measures its performance by the percentage of orders that can be filled from inventory at the time they come in. Aykin shows a methodology for ordering components, using the plant's desired order fill rate as an input, such that "the average order fill rate over time will be the target order fill rate value" (col 3, lines 16-18). **There is no implication here that the "target order fill rate" used as a measure of performance has anything at all to do with minimizing the total cost of the inventory of components, which is the problem addressed by the present invention.**

The difference from Aykin may be understood by reference to Aykin's own terminology: in terms of "fill rate," Aykin is only concerned with "fill rate" at the order level, whereas for the present invention component inventory cost can be reduced (e.g., minimized) by distinguishing the "fill rates" from component to component. For example, as stated above, it is possible – and the present invention shows how and claims the methodology – to reduce total inventory costs of components significantly by reducing only slightly the "fill rate" of an expensive component. Thus, when an order comes in, it may not be possible to start assembling the order because an expensive component is not in stock. The decision to adopt the strategy of minimizing total inventory costs in this fashion is quite different from – and may even be inconsistent with – the strategy of achieving a target "order fill rate."

In order to clarify this distinction from Aykin, the claims have been amended to make explicit this context of the present invention, where the cost of one component may be quite different from the cost of another component. Contrary to the Examiner's contention, achieving minimization of inventory cost as described in the present invention is not "inherent"in an inventory control system. Whether the method of the present invention could be applied under the constraint of achieving a target "order fill rate" is not of concern to the present application. Similarly, however, the total cost minimization methodology of the present invention is not suggested by Aykin, notwithstanding that the inventory shown by Aykin must necessarily have a cost. It is this cost which is "inherent," but there is no basis in the record for equating this cost to the cost minimization methodology of the present invention.

The Examiner has acknowledged that Aykin does not teach that the end products are personal computers, but argues that this is non-functional descriptive material that does not alter the method of managing manufacturing logistics, and therefore does not distinguish the invention in terms of patentability. However, the

application of a configure-to-order inventory management system to personal computer manufacturing is nontrivial for two reasons:

* First, in personal computer manufacturing the costs of components used to assemble the final products vary, and in order to minimize total inventory costs one must consider unit costs of components.

* Second, an inventory management system for personal computer manufacturing must handle demand originating from multiple market segments where order fill rate targets (or service level agreements) can be set by market segment.

In the present invention, service level agreements can be specified for each market segment individually through a set of mathematical constraints. Aykin's model does not provide for market segment demand. Aykin's computations are based on the assumption that one common order fill rate (or service level agreement) must be met for all customer orders.

The Examiner has noted that while Aykin does not disclose the use of a greedy algorithm, such algorithms are common in the art and use of such an algorithm would have been obvious. However, the term "greedy algorithm" is a very general term that applies to virtually any algorithm that moves along the steepest descent or ascent direction along the gradient of the objective. The present invention is not making any claim on a greedy algorithm as such. The claim of the invention is on the specific cost objective that we have formulated for the configure-to-order inventory-service optimization problem and the specific ways by which the gradients are computed to implement the greedy algorithm.

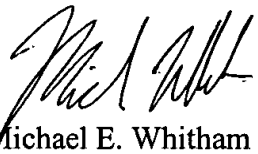
In view of the foregoing, it is requested that the application be reconsidered, that claims 1-15 be allowed, and that the application be passed to issue.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at 703-787-9400 (fax:

703-787-7557; email: clyde@wcc-ip.com) to discuss any other changes deemed necessary in a telephonic or personal interview.

If an extension of time is required for this response to be considered as being timely filed, a conditional petition is hereby made for such extension of time. Please charge any deficiencies in fees and credit any overpayment of fees to Deposit Account 50-0510 (IBM-Yorktown).

Respectfully submitted,



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